CURRENT STATUS OF THE RE-ISSUE CLAIMS SHOWING CHANGES RELATIVE TO THE ONES IN THE ORIGINAL PATENT (U.S. PATENT NO. 5,712,682)

1.   (Previously Presented) A camera comprising:

a sensor configured to capture an image and generate a sensor output signal representing the captured image;

an amplifier coupled to receive the sensor output signal, wherein the amplifier is configured to apply multiple gain levels to the sensor output signal; and

a processor coupled to the amplifier, wherein the processor is configured to provide a control signal to the amplifier to adjust the gain levels applied by the amplifier, the processor adapted to adjust the gain level of one portion of the captured image in response to a value of a previous portion of the captured image.

2.   (Original) The camera of claim 1 wherein the amplifier applies different gain levels to different regions of the captured image.

3.   (Original) The camera of claim 1 wherein the processor generates a gain map containing gain settings applied to the sensor output signal by the amplifier.

4.   (Original) The camera of claim 3 wherein the gain map is continually updated by the processor to include changes in the captured image.

5.   (Original) The camera of claim 3 wherein the gain map is a two dimensional array of gain settings, each gain setting indicating a particular gain applied by the amplifier to a corresponding region of the captured image.

6.   (Original) The camera of claim 3 further including a register coupled to the processor and the amplifier.

7.   (Original) The camera of claim 6 wherein the gain map is stored in the register and the amplifier reads the gain settings from the register.

8.   (Original) The camera of claim 1 wherein the processor provides the control signal to the amplifier in real-time.

9.   (Original) The camera of claim 1 wherein the processor analyzes the sensor output signal to determine whether a sufficient level of detail is provided in the sensor output signal.

10.   (Original) The camera of claim 9 wherein the processor increases the gain levels in dark portions of the captured image and the processor decreases the gain levels in bright portions of the captured image.

11.   (Previously Presented) An apparatus for capturing an image, comprising a camera, including:

a sensor configured to capture the image and generate a sensor output signal representing the captured image;

an amplifier coupled to receive the sensor output signal, wherein the amplifier has controls to apply multiple gain levels to the sensor output signal; and

a processor coupled to the camera, wherein the processor is configured to receive the sensor output signal, and wherein the processor is configured to provide a control signal to the amplifier to adjust the gain level applied by the amplifier so that the gain level of one portion of the captured image is different than the gain level of another portion of the captured image, and wherein the processor generates a gain map containing gain settings applied to the sensor output signal by the amplifier.

12.   (Canceled) [[The apparatus of claim 11 wherein the processor generates a gain map containing gain settings applied to the sensor output signal by the amplifier.]]

13.   (Previously Presented) The apparatus of [[claim 12]]claim 11 wherein the gain map is a two dimensional array of gain settings, each gain setting indicating a particular gain applied by the amplifier to a region of the captured image.

14.   (Original) The apparatus of claim 13 wherein the processor divides the captured image into a two dimensional array of image regions, each image region associated with a corresponding gain setting in the gain map.

15.   (Previously Presented) The apparatus of [[claim 12]]claim 11 wherein the camera further includes a register coupled to the processor and the amplifier.

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16.   (Original) The apparatus of claim 15 wherein the gain map is stored in the register and the amplifier reads the gain settings from the register.

17.   (Original) A method for enhancing the dynamic range of a sensor output signal representing a captured image, the method comprising the steps of:

amplifying the sensor output signal in response to gain settings contained in a gain map, wherein each gain setting is associated with a particular region of the captured image; and

updating the gain settings contained in the gain map in response to changes in the sensor output signal.

18.   (Original) The method of claim 17 wherein the step of updating the gain settings is performed in response to clipping of the amplified sensor output signal.

19.   (Original) The method of claim 17 wherein the step of updating the gain settings includes increasing the gain settings in dark portions of the image and reducing the gain settings in bright portions of the image.

20.   (Original) The method of claim 17 wherein the step of updating the gain settings includes dividing the captured image into a plurality of image regions, wherein each image region is associated with a particular gain setting in the gain map.

21.   (Original) The method of claim 17 further including the step of analyzing each image region and updating the associated gain setting in response to clipping of the amplified sensor output signal in the image region.

22.   (Original) An apparatus for capturing an image and generating a signal representing the captured image, comprising:

means for amplifying the signal in response to gain settings contained in a gain map, wherein each gain setting is associated with a particular region of the captured image;

means for updating the gain settings contained in the gain map; and

means for generating a control signal indicating a particular gain setting to be applied to a portion of the signal representing the captured image.

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23.   (New) <u>An apparatus adapted to process an image, comprising:</u>
<u>an amplifier adapted to apply more than one gain level to the image; and</u>
<u>a processor coupled to the amplifier, wherein the processor is capable of</u>
<u>adjusting the more than one gain level applied by the amplifier in real time, and</u>
<u>wherein the processor is capable of updating a gain map comprising settings applied by</u>
<u>the amplifier.</u>

24.   (New) <u>The apparatus of claim 23, further comprising a sensor coupled to</u>
<u>the amplifier provide the amplifier with the image.</u>

25.   (New) <u>The apparatus of claim 23, wherein the processor is further capable</u>
<u>of providing a control signal to the amplifier to adjust the more than one gain level</u>
<u>applied by the amplifier.</u>

26.   (New) <u>The apparatus of claim 23, wherein the amplifier is capable of</u>
<u>applying different gain levels to different regions of the image.</u>

27.   (Canceled) [[The apparatus of claim 23, wherein the processor is capable
of updating a gain map comprising settings applied by the amplifier.]]

28.   (New) <u>The apparatus of claim 23, wherein the gain map is a two</u>
<u>dimensional array of gain levels, each gain level indicating a particular gain applied by</u>
<u>the amplifier to a corresponding region of the image.</u>

29.   (New) <u>The apparatus of claim 23, further comprising a register coupled to</u>
<u>the processor and the amplifier.</u>

30.   (New) <u>The apparatus of claim 29, wherein the register is capable of</u>
<u>storing the gain map and the amplifier is adapted to read the gain levels from the</u>
<u>register.</u>

31.   (New) <u>The apparatus of claim 25, wherein the processor is further</u>
<u>adapted to provide the control signal to the amplifier in real-time.</u>

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32.   (New) The apparatus of claim 24, wherein the processor is further adapted to analyze the image to determine if the sensor is providing a sufficient level of detail.

33.   (New) The apparatus of claim 32, wherein the processor is further adapted to increase the gain level in dark portions of the image and decrease the gain level in bright portions of the image.

34.   (New) An apparatus capable of processing an image, comprising:

an image capture device coupled to the apparatus and capable of providing the image;

an amplifier coupled to the image capture device, wherein the amplifier is adapted to apply at least two gain levels, each to a different region of the image; and

a processor coupled to the amplifier, wherein the processor is adapted to provide a signal to the amplifier to adjust the at least two gain levels and apply one gain level to a first portion of the image and a second gain level to a second portion of the image, and wherein the processor is capable of generating a gain map containing gain levels applied by the amplifier.

35.   (New) The apparatus of claim 34, wherein the image capture device is a camera.

36.   (Canceled) [[The apparatus of claim 34, wherein the processor is capable of generating a gain map containing gain levels applied by the amplifier.]]

37.   (New) The apparatus of claim 34, wherein the gain map is a two dimensional array of gain levels, each gain level indicating a particular gain applied by the amplifier to a region of the image.

38.   (New) The apparatus of claim 37, wherein the processor is capable of dividing the image into a two dimensional array of image regions, each image region being associated with a corresponding level in the gain map.

39.   (New) The apparatus of claim 34, further comprising a register coupled to the processor.

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40.   (New) The apparatus of claim 39, wherein the register is capable of storing a gain map and the amplifier is capable of reading the gain levels from the register.

41.   (New) A method of processing an image, comprising:
amplifying a first portion of the image to a first gain level;
amplifying a second portion of the image to a second gain level; and
updating the first gain level and the second gain level in a gain map.

42.   (New) The method of claim 41, wherein updating the first gain level and the second gain level is performed in response to clipping of a portion of the image.

43.   (New) The method of claim 41, wherein updating the first gain level and second gain level includes increasing the gain level in dark portions of the image and reducing the gain level in bright portions of the image.

44.   (New) The method of claim 41, wherein updating the first gain level and the second gain level includes dividing the image into a plurality of image regions, wherein each of the plurality of image regions is associated with a gain level in the gain map.

45.   (New) The method of claim 41, further comprising analyzing each image region and updating the associated gain level in response to clipping of the image.

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